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American Council for Capital Formation

CONGRESSIONAL TESTIMONY

Tax and Environmental Policies and U.S. Economic Growth and Competitiveness

On June 6, 1991, ACCF President Mark Bloomfield and Chief Economist Margo Thorning testified as invited witnesses at a House Ways and Means Committee hearing that examined major factors affecting U.S. international competitiveness. Mr. Bloomfield and Dr. Thorning were part of a panel of economic experts that included Robert Lawrence, senior fellow at The Brookings Institution; Michael Porter, professor of business administration at the Harvard University School of Business; and Clyde Prestowitz, president of the Economic Strategy Institute. An executive summary and the complete ACCF testimony are presented below.

EXECUTIVE SUMMARY

1. There are several factors that bear on capital formation, international competitiveness, and environmental protection which we would like to bring to the Ways and Means Committee's attention. The focus of our testimony is twofold:

- First, high U.S. capital costs mandate revisions in the federal tax code to encourage capital formation and economic growth.
- Second, protection of the environment requires huge capital expenditures by U.S. industry. Financing for these outlays was made more difficult by provisions of the Tax Reform Act of 1986 (TRA). The Clean Air Act Amendments of 1990 as well as other environmental regulations should be supported with tax code modifications that would put U.S. firms at least on an equal footing with their international competitors.

2. U.S. capital costs are substantially higher than those of our major competitors. Although the differences may have narrowed recently, our high capital costs continue to impede the productive investment that is an indispensable element in retaining and building this nation's economic strength.

- New research by World Bank Chief Economist Lawrence Summers and Harvard Professor Bradford De Long concludes that investment in equipment is perhaps the single most important factor in economic development and growth.
- Taxes are a very important element in the cost of capital. Stanford University Professor John B. Shoven estimates that taxes account for up to one-third of U.S. capital costs.

3. The current tax system imposes high taxes on saving and on investment in modern equipment necessary for economic growth. A new study by Stanford Economics Professor Lawrence H. Goulder and University of Geneva Professor Philippe Thalmann found that the increased tax rate for capital caused by TRA reduced the efficiency of investment and implies a lower growth rate of gross domestic product than would be the case without TRA. Research by University of Pennsylvania Professor Alan J. Auerbach (currently serving as a consultant to the Joint Tax Committee) and Kevin Hassett of Columbia University corroborates the investment effects of TRA found by Goulder and Thalmann. Auerbach and Hassett conclude that TRA has reduced equipment investment relative to what would have occurred under prior law.

4. TRA raised effective tax rates on equipment and structures for taxpayers subject to the regular corporate income tax primarily through the repeal of the investment tax credit (applicable only to equipment), lengthening of recovery periods, and a new alternative minimum tax (AMT) system separate from, but parallel to, the regular tax system. A new analysis by Arthur Andersen shows that for equipment that is technologically innovative or crucial to U.S. economic strength, our capital cost recovery lags badly behind our major competitors. Capital cost recovery provisions for pollution-control equipment are much less favorable now than prior to TRA and less generous than those of our competitors.

5. Improving U.S. competitiveness requires: (1) reducing the cost of capital for productive and pollution-control equipment for taxpayers subject to the regular tax; (2) modifying AMT depreciation; (3) restoring a capital gains tax differential; and (4) increasing saving incentives through mechanisms such as individual retirement accounts (IRAs).

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6. Although spending cuts would be preferable if additional revenues are needed, a broad-based consumption tax such as a value added tax (VAT) could provide the wherewithal for tax initiatives needed both to lower U.S. capital costs for investment in equipment, a crucial determinant of economic growth, and to support the achievement of U.S. environmental goals.

ACCF STATEMENT

My name is Mark A. Bloomfield. I am president of the American Council for Capital Formation (ACCF). I am accompanied by Dr. Margo Thorning, our chief economist. The ACCF represents a broad cross section of the American business community, including the manufacturing and investment sectors, Fortune 500 companies and smaller firms, associations, and individuals. Our board of directors includes cabinet members of prior Democratic and Republican administrations, former members of Congress, prominent business leaders, and public finance experts. We appreciate this opportunity to present testimony on strategies for increasing U.S. economic growth and competitiveness.

The focus of our testimony is twofold: First, high U.S. capital costs mandate revisions in the current federal tax code to encourage capital formation and economic growth. Second, protection of the environment requires huge capital expenditures by U.S. industry; financing for these outlays was made more difficult by provisions in the Tax Reform Act of 1986. The Clean Air Act Amendments of 1990 as well as other environmental regulations should be supported with tax code modifications that would put U.S. firms at least on an equal footing with their international competitors.

In its effort to focus the attention of policymakers and the media on the effect of tax and environmental policies on U.S. economic growth, the ACCF Center for Policy Research has commissioned extensive economic research on the cost of capital as part of its 1991 project, Tax and Environmental Policies and U.S. Economic Growth. This research, described in this testimony, makes clear that U.S. competitiveness and economic growth are imperiled absent tax code revisions that reduce capital costs for the acquisition of productive equipment as well as equipment for pollution control and prevention.

Achievements of Tax Reform and Environmental Regulation

No one can dispute the fact that the Tax Reform Act of 1986 (TRA) and the environmental laws enacted over the past twenty years have had some very positive effects on the U.S. economy and the quality of life in the United States.

Among the "pluses" of TRA are individual and corporate income tax rate reduction, curtailment of tax shelters, and tax relief for millions of low-income taxpayers. Lower income tax rates were achieved by broadening the base for individual and corporate income. Lower tax rates help minimize the distortions to economic decisions caused by the existence of the income tax and reduce the attractiveness of tax shelters. TRA also directly attacked tax shelters through its passive loss provisions.

Environmental laws for water and air quality, solid and hazardous waste management, and similar problems have made a significant improvement in the quality of the environment. Over the past twenty-five years the United States has put in place extensive and detailed government policies to help solve a number of environmental problems. Smog in heavily populated areas, the pollution of lakes, elevated levels of lead in the blood of millions of children, the threat of cancer from exposure to pesticide residues in food, and abandoned drums of hazardous wastes are a few of the serious problems that have led to the enactment of more than a dozen major federal laws and the current public and private expenditure, according to EPA, of about $100 billion a year to protect the environment.

These environmental laws have led to very real national benefits. The enormous human health and ecological problems apparent throughout Eastern Europe suggest the price the United States would be paying now had it not invested heavily in pollution controls.

Impediments to Capital Formation, International Competitiveness, and Environmental Protection

There are several factors that bear on capital formation, international competitiveness, and environmental protection which we would like to bring to the Ways and Means Committee's attention.

U.S. Capital Costs Impede Investment

Many scholars have concluded that U.S. capital costs are substantially higher than those of our major competitors. Although the differences may have narrowed somewhat during the current recession, our high capital costs continue to impede the productive investment that is an indispensable element in providing jobs, growth, and competitiveness—in short, in retaining and building this nation's economic strength. Taxes are a very important element in the cost of capital. For example, Stanford University Professor John B. Shoven estimates that taxes account for up to one-third of U.S. capital costs. This issue is addressed more fully later in our testimony.

Equipment Investment Is Crucial To Growth

Recent research has confirmed what many of us knew intuitively—that the volume of investment in equipment is a critical factor in the pace of economic growth and development. A recent

article in the *Quarterly Journal of Economics* by Harvard Professors J. Bradford De Long and Lawrence Summers (the latter on leave as vice president and chief economist of the World Bank) concludes that, for a broad cross section of nations, every one percent of gross domestic product (GDP) that is invested in equipment is associated with an increase in the GDP growth rate itself of one-third of one percent—a very substantial rate of return. De Long and Summers therefore conclude that investment in equipment is perhaps the single most important factor in economic growth and development.

U.S. Investment Is Too Low

Investment spending in the United States compares unfavorably with that of other nations. From 1973 to 1988 saving and investment as a percent of GDP was lower for the United States than for any of our major competitors with the exception of the United Kingdom (see Table 1).

Japan's lead in saving and investment is highlighted by a comparison of saving and investment over the 1985–1989 period. Japan is investing a much larger portion of its GNP, 29.2 percent, as contrasted with only 17.2 percent in the United States (see Chart 1). Even more disturbing is the fact that Japan, whose GNP is just over half that of the United States, is investing more in absolute dollar amounts than is the United States. In 1990, Japan's nonresidential fixed investment equalled $675 billion, while the comparable U.S. figure was only $524 billion.

Those who argue that U.S. investment in productive equipment held up well in the 1980s are wrong because they fail to disaggregate the data on overall investment in producers' durable equipment. Few will dispute the gain in productivity in steel manufacturing from replacing old equipment with a modern, state-of-the-art, continuous-casting process. Similarly, computer-driven assembly lines, robotics, better equipment to promote

Table 1: Saving and Investment as a Percent of Gross Domestic Product, 1973–1988

	United States	Canada	Japan	France	West Germany	United Kingdom
SAVING						
Net Saving[1]	4.7%	9.1%	18.7%	8.9%	10.6%	5.3%
Personal Saving[2]	5.6%	7.2%	12.6%	7.9%	8.1%	4.3%[3]
Gross Saving (net saving plus consumption of fixed capital)[4]	17.4%	20.6%	32.1%	21.0%	22.6%	17.1%
INVESTMENT						
Gross Non-Residential Fixed Capital Formation	13.3%	15.6%	23.8%	14.6%	14.6%	14.0%
Gross Fixed Capital Formation	18.1%	21.8%	30.0%	21.0%	20.6%	17.7%

Source: Derived from National Accounts, Vol. 11, 1973–1985 and 1976–1988, Organization for Economic Co-Operation and Development (OECD), 1987 and 1990 eds. Prepared by the American Council for Capital Formation Center for Policy Research, November 1990.

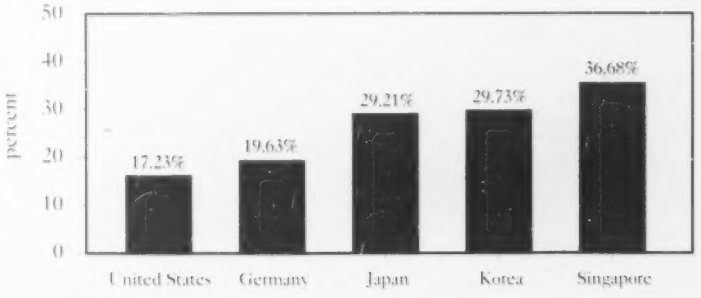
[1]The main components of the OECD definition of net saving are personal saving, business saving (undistributed corporate profits), and government saving (or dissaving). The OECD definition of net saving differs from that used in the National Income and Product Accounts published by the Department of Commerce, primarily because of the treatment of government capital formation.

[2]Personal saving is comprised of household saving and private unincorporated enterprise.

[3]This percentage is for the years 1973–1987.

[4]The main components of the OECD definition of consumption of fixed capital are the capital consumption allowances (depreciation charges) for both the private and the government sector.

CHART 1
INTERNATIONAL COMPARISON OF FIXED INVESTMENT AS A PERCENT OF GNP
(Average of 1985–1989)



Source: International Monetary Fund, *International Financial Statistics*, May 1991. Prepared by the American Council for Capital Formation Center for Policy Research, May 1991.

Notes: Fixed investment is defined as additions of new and imported durable goods and construction for both private and government investment. GNP is measured in current prices.

energy development, efficiency in transportation—all of these score heavily in the productivity sweepstakes. But the fact is that overall figures on investment in equipment are heavily influenced by information processing outlays, which are less important for enhancing manufacturing productivity. Recent data therefore hide the truly important trends.

Computations by Dr. Charles Steindel of the Federal Reserve Bank of New York, another expert on investment and capital costs, tell an interesting and disturbing story. To be sure, as Table 2 shows, the annual percentage change in the overall net stock of business equipment rose by 4 to 5 percent in each of the past four decades, and the 1980–1989 average annual rate of 4.1 percent compares favorably with the rates in the earlier periods. But those figures include all equipment—ranging from the business furniture and fixtures that add almost nothing to manufacturing productivity, to the office equipment that does add something but not as much as equipment used directly in the production process, to the truly productive equipment that is really the heart of the matter. And when overall equipment figures are broken down, the recent trend in productive investment is shocking.

Steindel's net capital stock figures show an average annual increase in industrial equipment (and for equipment less information processing) of 4 to 5 percent for the three decades ending in 1979, but the trend is downward, falling to the abysmally low level of 1.6 percent for the decade of the eighties.

This extremely low level of productive investment portends slower growth and reduced U.S. competitiveness.

U.S. Productivity Is Outstripped By Rivals

A nation's ability to consume and its material living standards must be derived from its productivity, defined broadly to include both more output per unit of input and also improvements in quality and in innovative new products.

Table 2: Growth in the Net Capital Stock by Type (annual percentage change in 1982 dollars)

	1950–59	1960–69	1970–79	1980–89	1989 Level (billions of 1982 dollars)
Total	**3.8**	**4.3**	**3.6**	**3.0**	**3830.4**
Equipment	4.7	4.9	5.0	4.1	2012.8
Equipment Less Information Processing	4.2	4.9	4.3	1.6	1339.8
Information Processing	8.9	8.2	9.5	12.2	673.0
Industrial	5.2	4.2	3.7	1.4	637.3
Motor Vehicles	3.9	7.1	6.1	3.0	234.7
Aircraft	10.6	15.4	3.1	5.1	87.1
Structures	3.3	3.8	2.5	1.9	1817.6
Industrial	3.8	5.5	1.2	0.2	224.5
Commercial	4.5	6.8	4.2	4.3	586.1
Public Utility	4.5	3.3	3.3	1.0	437.3
Petroleum	7.5	0.3	1.7	1.1	144.1

Source: Taken from Charles Steindel, "Recent Trends in Capital Formation," in *U.S. Investment Trends: Impact on Productivity, Competitiveness, and Growth* (Washington, D.C.: American Council for Capital Formation Center for Policy Research, April 1991).

The integration of world markets means that prices for many goods (and some services) are determined internationally. Thus, simply increasing overall U.S. productivity is not enough to maintain our competitiveness. The crucial figure is productivity with respect to goods and services that are traded internationally, especially manufactured goods and agricultural products. As Allen Lenz, a former Commerce Department trade policy expert, notes in his book *Beyond Blue Economic Horizons*, if a competitor's productivity grows more rapidly than that of the United States, the competitor's prices will decline relative to U.S. prices. This will increase the competitor's share of U.S. and foreign markets. Dollar depreciation and downward pressure on real wages will then be required to return U.S. external transactions to balance at the cost, of course, of sluggish growth in living standards. In the long term, if the United States is to balance its international accounts without deteriorating terms of trade, U.S. productivity growth rates must compare favorably with those of other major trading nations.

How has the United States fared in the productivity growth race? Changes in output per worker-hour are a common measure of productivity growth rates. These increases in output per worker-hour result from increases in the stock of physical capital per worker and improvement in the ways in which human and physical capital work together to produce goods and services. Although no individual statistic tells the whole story, manufacturing productivity is a useful indicator of U.S. performance in international competition because the manufacturing sector interacts more directly with and is more affected by foreign competition than most other sectors.

Productivity growth rates in U.S. manufacturing have improved recently, and they compare favorably with those of earlier years. The productivity of major competitors, however, has consistently increased more rapidly than that of the United States. Therefore, the U.S. manufacturing sector has been losing ground relative to its competitors, a strong indicator of declining

U.S. international competitiveness. During the 1973–1989 period the 2.7 percent annual U.S. manufacturing productivity growth rate lagged far behind Japan's 5.5 percent rate, was significantly under the average growth rate of ten other industrial countries, and was well below even the United Kingdom's 3.4 percent growth rate.

Environmental Regulation Impacts U.S. Economic Growth

Pollution-control legislation began in earnest in the United States in 1965, when amendments to the Clean Air Act set national automobile emissions standards for the first time. The extent of regulation increased dramatically in 1970 with the passage of the National Environmental Policy Act and amendments to the Clean Air Act. In 1972 the Clean Water Act was passed, and revisions to this act and to the Clean Air Act were adopted in 1977. Hazardous and solid waste and Superfund legislation was also passed and amended during this period. Most recently, amendments to the Clean Air Act were adopted in 1990. The consequence of this sequence of legislation has been a large and abrupt shift of economic resources toward pollution abatement and slower economic growth, according to a study by Harvard University Professors Dale W. Jorgenson and Peter J. Wilcoxen.

The most striking economic development in the United States during the postwar period has been the sharp decline in the rate of economic growth during the 1970s and 1980s. Real output grew at an average annual rate of 3.7 percent during the period 1947–1973. By contrast, the growth rate from 1973 to 1985 was only 2.5 percent, fully 1.2 percentage points lower. Two events coincided with the slowdown: the advent of environmental regulation and the increase of world petroleum prices.

Jorgenson and Wilcoxen analyzed the impact of environmental regulation by simulating the growth of the U.S. economy both with and without regulation. Their findings show that GNP growth was slowed by environmental regulation over the 1973–1985 period. Among the environmental regulatory measures, mandated investment in pollution-control equipment had the largest negative impact, with motor vehicle emissions control not far behind. The added operating costs due to pollution abatement played a minor role in the growth slowdown.

The two Harvard professors found that the cost of environmental regulation in the long run (after 1995) is a permanent, annual reduction of 2.59 percent in U.S. gross national product. This is more than 10 percent of the share of total government purchases of goods and services in the gross national product during the period 1973–1985. In addition, the cost of capital (defined as the pretax return required by an investor) is almost 5 percent higher in the long run than it would have been in the absence of environmental regulation, and the capital stock is almost 4 percent lower. Jorgenson and Wilcoxen's analysis does not include the 1990 Clean Air Act Amendments. Other experts have predicted that the revised Clean Air Act will slow economic growth further and increase capital costs for U.S. industry.

Concerns About the Current Tax System

Higher Tax Rates on Equipment Reduce Growth

A goal of the Tax Reform Act of 1986 was to improve economic efficiency. By equalizing marginal tax rates on different types of physical capital, it is argued, resource allocation will improve and output will increase. In fact, TRA attempted to equalize marginal tax rates by raising taxes on productive assets such as equipment and structures while reducing the tax rate on other investments such as land and inventories. While this short-sighted approach does equalize tax rates on alternative investments and may increase efficiency among investments today, it has the unfortunate consequence of discriminating against the saving and investment needed for solid economic performance in the future. Discriminating against saving and investment distorts the allocation of resources over time and means that future generations will inherit a smaller capital stock and face the prospect of slower economic growth and living standards that rise more slowly.

TRA attempted to reduce the dispersion in taxes on different types of investment. That goal was partially accomplished, at least with regard to investments in tangible assets, e.g., equipment, structures, land, and inventories. According to the Council of Economic Advisers (CEA), the average effective tax rate on investment within the corporate sector increased from 38.7 percent prior to tax reform to 44.4 percent after TRA's passage (see Table 3). TRA reduced the variance of the effective tax rate on alternative investments by sharply increasing the effective tax rate on investment in equipment (from 10.0 to 39.6 percent) relative to the increase in the effective tax rates on structures, including owner-occupied housing. The effective tax rates on land and inventories have fallen as a result of TRA.

Viewed from a broader perspective—a comparison of the effective tax rate for tangible and intangible investment—TRA was not successful in equalizing the tax rates and the cost of capital for different types of investment. As a study by Professor Don Fullerton of the University of Virginia and Professor Andrew B. Lyon of the University of Maryland points out, the cost of capital, which is linked closely to the effective tax rate for equipment (a tangible asset), increased as a result of tax reform both in absolute terms and relative to intangible investment. The cost of capital for equipment—defined here as the pretax return on a new investment needed to induce an investor to commit his funds to a particular project or company—rose

Table 3: Estimated Average Effective Tax Rate on Investment
(percent)

Type of Asset	Prior to TRA	Under TRA	Prior to TRA	Under TRA
Overall tax rate on investment	33.3	36.5	—	—
Owner-occupied housing	22.5	23.7	—	—
	Corporate		Noncorporate	
Equipment	10.0	39.6	−11.9	25.4
Structures				
nonresidential	34.4	43.1	27.8	31.4
residential	49.5	52.5	38.2	40.6
public utility	32.6	44.5	22.1	33.6
Inventories	48.8	45.8	33.0	30.5
Land				
nonresidential	50.6	47.8	36.1	33.8
residential	53.9	51.4	41.4	39.5
Overall within sector	38.7	44.4	33.2	33.9

Source: Economic Report of the President, January 1989 (Washington, D.C.: U.S. Government Printing Office), p. 92.

Table 4: Cost of Capital for Tangible and Intangible Assets
(percent)

Asset	Prior Law	Tax Reform Act of 1986	% Change from Prior Law
Equipment	5.23	7.25	38.62
Structures	8.47	8.08	−4.61
Inventories	9.68	8.06	−16.73
Land	10.04	8.42	−16.14
Average for all tangible assets	7.52	7.92	5.32
Advertising	4.50	4.50	0.0
R&D Capital	4.50	4.50	0.0
Average for intangible assets	4.50	4.50	0.0
Average for all capital	7.19	7.53	4.73

Source: Don Fullerton and Andrew B. Lyon, "Tax Neutrality and Intangible Capital," National Bureau of Economic Research Working Paper #2430, November 1987.

from 5.23 percent under prior law to 7.25 percent under TRA, an increase of 38.62 percent (see Table 4). Thus the cost of capital for equipment is now 60 percent higher than that for intangible capital, rather than only 16 percent higher as under prior law. Capital costs for intangible assets such as R&D and advertising were unchanged because they are expensed, or written off immediately, rather than capitalized, or depreciated.

Had the tax-writing committees not chosen to pay for individual tax rate reductions with corporate tax increases, they could have moved toward equalizing effective rates on alternative investments in tangible assets by significantly reducing the rates on structures, inventories, and land rather than by increasing the rate on equipment. Such a move would have reduced the bias against saving and investment that is inherent in an income tax and improved the allocation of resources between present and future generations by increasing capital formation.

A new study by Stanford Economics Professor Lawrence H. Goulder and University of Geneva Professor Philippe Thalmann found that the increased tax rate for capital caused by TRA reduced the efficiency of investment and implies a lower growth rate of gross domestic product than would be the case without TRA.

Using a disaggregated general equilibrium model of the U.S. economy, Goulder and Thalmann analyzed marginal effective tax rates (METRs) for a variety of assets prior to and after TRA. Corroborating the earlier CEA study results, the authors found that the tax policy changes of TRA increase the METRs for practically all types of capital. Particularly affected is equipment used in manufacturing, services, and agriculture and mining. For example, the tax rate on manufacturing equipment rises from 18.6 percent in 1983 to 29.5 percent after the passage of TRA, an increase of almost 60 percent (see Table 5). The mean METR over all types of capital is up by more than six percentage points, indicating lower intertemporal neutrality. (Intertemporal neutrality is obtained when the effective tax rate on investment is zero, and the relative price of current and future consumption is not affected by taxation. A consumption tax such as a traditional value added tax is considered to be intertemporally neutral, for example.)

Goulder and Thalmann's analysis shows that investment is lower after the passage of TRA relative to what it would have been with no change in tax policy. The increase in METRs, as expected, tends to reduce investment. As shown in Table 6, aggregate private investment falls by 4.1 percent in the first period ("short run") and by 8.2 percent in the new steady state ("long run").

By reducing investment incentives, TRA crowds in higher consumption in the short run. However, in the long run, consumption (welfare) falls relative to the base case, a consequence of a lower capital stock and the associated reduction in real incomes.

The decline in welfare can be attributed to the way TRA changes the relative taxation of old and new capital. The benefits in the static allocation of capital from more uniform

Table 5: Marginal Effective Tax Rate on Investment, Pre- and Post-Tax Reform (in percentage points)

Industry	Pre-TRA86[1]		TRA86[2]	
	Structures	Equipment	Structures	Equipment
1. Agriculture and Mining	37.2	26.6	36.1	33.1
2. Manufacturing	31.1	18.6	32.1	29.5
3. Services	13.2	5.1	25.3	24.6
4. Nonresidential construction	32.9	24.6	32.8	33.7
5. Residential construction	31.6	22.7	32.0	33.0
6. Housing services	7.8	8.3	9.3	9.3
Mean, business sector (#1–5)	21.3	12.1	28.7	27.3
Mean, business and housing sectors (#1–6)	12.7	11.8	16.4	25.7
Mean, business sector, all assets	16.6		28.0	
Mean, business and housing sector, all assets	12.5		19.1	
Standard deviation, all assets	8.7		9.8	

Source: Lawrence H. Goulder and Philippe Thalmann, *Approaches to Efficient Capital Taxation: Leveling the Playing Field vs. Living by the Golden Rule*, National Bureau of Economic Research Working Paper #3559, December 1990.

[1]Benchmark is 1983.
[2]These rates correspond to the steady state. They are slightly different in the transition years. For example, the mean METRs are 16.6 for structures and 27.2 for equipment, or 19.7 for all assets in the first year of transition.

Table 6: Impact of Tax Reform Act of 1986 on Investment and Asset Prices[1]

Industry	Investment		Asset Price[2]	
	Short Run	Long Run	Short Run	Long Run
Agriculture	−1.0	−3.1	20.3	21.8
Manufacturing	−4.7	−8.7	15.8	27.3
Services	−7.6	−12.6	22.3	52.5
Non-residential construction	−4.9	−8.9	10.4	21.8
Residential construction	−3.3	−8.2	14.3	22.3
Housing Services	1.6	−1.6	9.4	7.1
Total	−4.1	−8.2	13.9	20.8

Source: Lawrence H. Goulder and Philippe Thalmann, *Approaches to Efficient Capital Taxation: Leveling the Playing Field vs. Living by the Golden Rule*, National Bureau of Economic Research Working Paper #3559, December 1990.

[1]Percentage changes from 1983 base case.
[2]Asset price is defined as the ratio of the equity value to the replacement cost of the stock of capital.

METRs in the business sector are more than offset by intertemporal losses associated with a higher average level of the METRs and by less uniform METRs between business and housing. The reduction in output and real income implies a smaller tax base and partially accounts for the fact that TRA loses $1.1 trillion in the long run in federal tax revenues (in present value terms) compared to the baseline.

Research by University of Pennsylvania Professor Alan J. Auerbach (now serving as a consultant to the Joint Tax Committee) and Kevin Hassett of Columbia University corroborates the investment effects of TRA found by Goulder and Thalmann. Auerbach and Hassett conclude that TRA has reduced equipment investment relative to what would have occurred under prior law.

Capital Cost Recovery Provisions Handicap U.S. Firms

Effective tax rates on equipment and structures for taxpayers subject to the regular corporate income tax were raised by TRA primarily through the repeal of the investment tax credit (applicable only to equipment) and the lengthening of recovery periods. TRA also created a comprehensive alternative minimum tax (AMT) system separate from, but parallel to, the regular tax system. Under the AMT scheme, taxable income is modified by an intricate series of "adjustments" and by "preference items" to arrive at alternative minimum taxable income. Depreciation allowances for firms paying the alternative minimum tax are generally much less favorable than those for firms paying the regular corporate income tax. Thus, a high level of investment is a major reason why firms become AMT taxpayers. One highly regarded expert estimated that 40 percent of large U.S. companies may pay the AMT rather than the regular income tax in 1991 and beyond.

The impact on U.S. industry can be illustrated by a specific example relating to the speed with which a corporation recovers the capital it invests in

Table 7: International Comparison of Nominal Costs Recovered as a Percentage of Cost After Five Years For Equipment Used To Make Selected Manufacturing Products and Pollution-Control Equipment

	Computer Chips	Telephone Switching Equipment	Factory Robots	Crank-shafts	Continuous Casting for Steel Production	Engine Blocks	Wastewater Treatment for Chemical Production	Wastewater Treatment for Pulp and Paper Equipment	Scrubbers Used in Electricity Plants
United States									
1985 Law	116.74	116.74	116.74	116.74	116.74	116.74	116.74	116.74	73.04
MACRS	94.24	94.24	77.69	77.69	77.69	77.69	94.24	77.69	29.54
AMT-ACE	90.42	75.98	46.73	39.38	31.68	34.06	49.07	36.53	17.53
Brazil	67.50	67.50	67.50	67.50	100.00	67.50	67.50	67.50	90.00
Canada	72.32	72.32	72.32	72.32	72.21	72.32	100.00	100.00	100.00
Germany	81.39	81.39	81.39	87.34	81.39	87.34	53.67	53.67	53.67
Japan	64.35	64.35	60.83	64.35	57.73	64.35	64.35	64.35	64.35
Korea (w/3% ITC)	97.27	97.27	97.27	93.89	89.88	93.89	97.27	97.27	97.27
Singapore	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Taiwan	90.00	81.00	90.00	40.50	40.50	40.50	160.00	160.00	160.00

Source: Stephen R. Corrick and Gerald M. Godshaw, "AMT Depreciation: How Bad is Bad?" Paper prepared for a symposium sponsored by the ACCF Center for Policy Research, Washington, D.C., May 14, 1991.

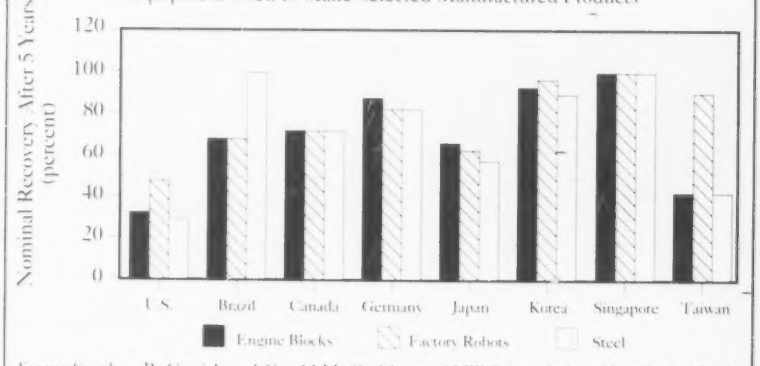
Notes: 1985 law refers to the federal tax code provisions for capital cost recovery on December 31, 1985 or the Economic Recovery Tax Act of 1981 as modified by TEFRA (1982) and DRA (1984). MACRS refers to the capital cost recovery provisions of the Tax Reform Act of 1986. The calculations assume the investing firm incurs the regular marginal corporate tax rate of 34 percent. Current law-alternative minimum tax (AMT-ACE) refers to the capital cost recovery provisions of the Tax Reform Act of 1986 for firms incurring the alternative minimum tax adjusted earnings rule. The calculations assume the firm stays on the minimum tax.

new equipment. A study by Arthur Andersen & Co. commissioned for a recent ACCF Center for Policy Research symposium demonstrates that under the strongly pro-investment tax regime put in place in 1981, a steel company that installed a modern, competitive, continuous-casting process would recover its invested capital in less than five years.

In contrast, under current law, that steel company, if subject only to the regular corporate tax, would recover only 78 percent of its capital within five years. And if, as most major steel companies are, it is subject to the corporate alternative minimum tax, the company would recover only 32 percent of its investment in five years (see Chart 2 and Table 7).

The Arthur Andersen study also shows that for equipment that is technologically innovative or crucial to U.S. economic strength, we lag badly behind our major competitors. Examples are equipment used to make computer chips, robots for the manufactur-

CHART 2
NOMINAL CAPITAL COST RECOVERY: U.S. FIRMS SUBJECT TO THE AMT COMPARED TO SELECTED COMPETITORS
Equipment Used to Make Selected Manufactured Products



Source: Stephen R. Corrick and Gerald M. Godshaw, "AMT Depreciation: How Bad is Bad?" Paper prepared for a symposium sponsored by the American Council for Capital Formation Center for Policy Research, Washington, D.C., May 14, 1991.

Notes: Nominal capital costs recovered after five years measure the speed at which a firm is able to recover its capital expenditures. U.S. firms are assumed to pay the alternative minimum tax (AMT) throughout the class life of the asset.

The alternative minimum tax refers to the capital cost recovery provisions of the Tax Reform Act of 1986 for firms incurring the alternative minimum tax adjusted current earnings rule. The calculations assume the firm stays on the AMT.

None of the competitor countries has an AMT system similar to that of the U.S.

ing process, engine blocks and crankshafts for automobiles and trucks, telephone switching equipment, and equipment used in the continuous-casting process for steel. In fact, compared to seven of our major competitors, we rank in the bottom tier in terms of speed of capital cost recovery (see Table 7). Critics who charge that the analysis of cost recovery by Arthur Andersen is incomplete because it does not incorporate differences in corporate income tax rates should note that there is not much difference between the U.S. tax rate and that of many of our competitors. For example, Japan's corporate tax rate is 37.5 percent compared to 34 percent in the U.S. Other comparable figures are 41.25 percent for Korea; for Singapore, 32.8 percent; and for Canada, 39.1 percent.

Capital Cost Recovery Penalizes Pollution-Control Equipment

Capital cost recovery provisions for pollution-control equipment are much less favorable now than prior to TRA's passage. As is true in the case of productive equipment, loss of the investment tax credit and lengthening of depreciable lives both raise effective tax rates. Pollution-control outlays also become subject to the AMT under TRA.

As shown in Table 7, TRA has significantly slowed capital cost recovery for pollution-control equipment. For example, costs for wastewater treatment facilities used in pulp and paper production were recovered in less than five years prior to TRA. Under regular TRA income tax, only 78 percent of costs are recovered after five years, while AMT payers recover only 37 percent. Scrubbers used in the production of electricity fare even worse. Prior to TRA, 73 percent of costs were recovered after five years. Today regular taxpayers recover only 29.5 percent of costs after five years; for AMT taxpayers the figure drops to 17.5 percent.

Another TRA modification slows the recovery period for new "certified pollution-control facilities." Section 169 of the federal tax code permits corporations to elect to amortize over sixty months a substantial part of the cost incurred in adding a "certified pollution-control facility" to a plant in operation before 1976. A "certified pollution-control facility" is a "new, identifiable treatment facility" that is used to abate or control water or atmosphere pollution or contamination by removing, altering, disposing, storing, or preventing the creation of emissions of pollutants, contaminants, wastes or heat. Prior to TRA, 80 percent of qualifying costs for pollution-control equipment were eligible for sixty-month amortization; TRA reduced this percentage to 60 percent.

In addition to the modification TRA made to section 169, the passage of time had made this code section less and less useful for U.S. businesses. While the capital formation incentive provisions of the tax code relating to pollution-control equipment have changed substantially, the provisions of IRC section 169, which defines what property qualifies for sixty-month amortization, have not significantly changed since the 1970s. As a result, the definition of qualifying property has become antiquated. For example, only pollution-control equipment that is used in connection with a plant or other property in operation prior to January 1, 1976 may qualify for sixty-month amortization. Undoubtedly, many plants that were placed in service after 1975 will require environmental equipment, yet this equipment will not qualify for sixty-month amortization. Furthermore, the qualification rules of IRC section 169 are strict and thus may exclude from qualification many of the capital expenditures that companies will be required to incur in order to comply with the Clean Air Act provisions and other regulations such as those that apply to hazardous waste.

The U.S. competitive disadvantage in capital cost recovery for pollution-control equipment documented in the Arthur Andersen study was noted earlier in a 1990 study by Stephen F. Clarke of the Law Library of Congress. According to the report, a number of governments have included incentives in their tax codes to encourage or facilitate compliance with pollution-control laws. Accelerated depreciation is the most common type of tax concession granted to certain types of businesses acquiring antipollution equipment. Canada, France, Germany, India, Japan, Singapore, and Taiwan all currently have or in the recent past have had special rates for writing off equipment and properties purchased for the purpose of preventing pollution or damage to the environment. According to Clarke's study, most of our competitors offering special rates for the depreciation of antipollution devices allow at least 80 percent of the acquisition cost to be written off in no more than three years.

Slow recovery of pollution-control investments is a significant drag on U.S. industry for two reasons. First, the capital outlays are large. For example, in 1990 pollution-control expenditures by business were about 7.1 percent of nonresidential fixed investment and an even higher 9.8 percent of producers' durable equipment. Second, prices for many manufactured products, natural resources, and agricultural goods as well as some services are set in world markets. To the extent that U.S. firms trying to compete internationally face less favorable capital cost recovery for pollution-control equipment, they are at a disadvantage. With the enactment of the Clean Air Act Amendments in 1990, the expected reauthorization of the Resource Conservation and Recovery Act (RCRA), and other pollution prevention and control initiatives, it seems clear that business capital expenditures on pollution-control will continue to absorb a significant share of capital spending during the 1990s.

Prior to TRA, the tax incentives available to help finance the capital

costs of pollution-control equipment were substantially greater than they are today. The impact of TRA depreciation changes, the loss of tax-exempt financing for pollution-control facilities, and the antiquated definitions of qualifying pollution-control property substantially increase the cost of capital for pollution-control equipment and will make complying with the Clean Air Act Amendments and other environmental laws more costly and thereby negatively impact U.S. competitiveness.

Capital Costs Rise Under TRA

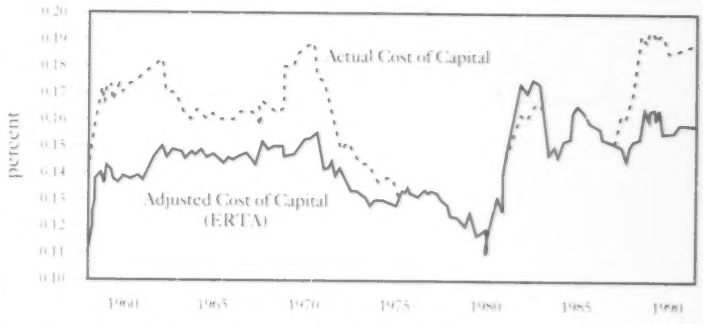
The user cost of capital is the pretax return on a new investment that is required to cover the purchase price of the asset, the market rate of interest, inflation, risk, economic depreciation, and taxes. This capital cost concept is often called the "hurdle rate" because it measures the return an investment must yield before a firm would be willing to undertake the capital expenditure.

TRA's capital cost recovery provisions raised effective tax rates and capital costs for productive and pollution-control assets. This should be of concern to policymakers because the higher the cost of capital, the fewer the investment projects which will meet business hurdle rates.

According to estimates by Dr. Joel Prakken of Laurence H. Meyer & Associates, an expert on capital costs, the user cost for most types of productive equipment rose from 11 percent in the late 1970s to almost 19 percent in 1990, an increase of more than 70 percent (see Chart 3). The double-digit interest rates that emerged in the late 1970s were a major part of the increase in the first part of the period. The rise since 1981, however, has been almost entirely driven by tax increases on investment in equipment (i.e., the loss of the investment tax credit and the lengthening of the depreciable lives) and (to a lesser extent) the increase in tax rates on capital gains. Indeed, according to the Congressional Research Service (CRS), the user cost of capital investment in equipment rose by 23 percent between 1981 and 1988, for tax policy reasons alone. Prakken's analysis reinforces the CRS findings, indicating that if the provisions of the Economic Recovery Tax Act of 1981 had stayed intact, rather than being largely repealed between 1982 and 1986, the user cost of capital for equipment in 1990 would have been substantially less than 19 percent.

This trend in U.S. capital costs helps greatly to explain why, for example, Japan invests more each year in new plant and equipment than do we, despite the fact that its gross national product is much smaller than ours. It also helps explain why the rate of Japan's investment per worker (a very important comparison) is about twice

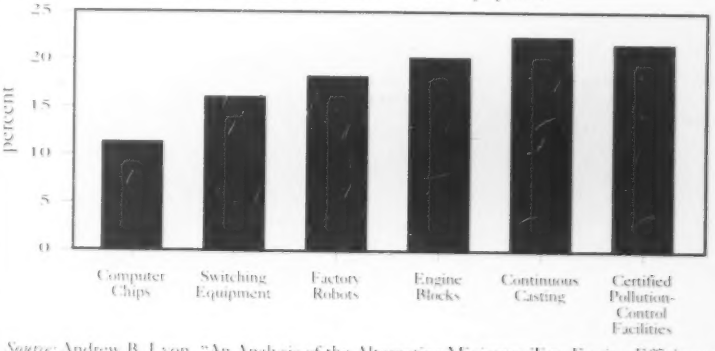
CHART 3
COST OF CAPITAL FOR EQUIPMENT



Source: Joel Prakken, "Commentary," *U.S. Investment Trends: Impact on Productivity, Competitiveness, and Growth* (Washington, D.C.: American Council for Capital Formation Center for Policy Research, April 1991).

Note: The cost of capital is defined as the user cost or the cost of business. Calculations exclude office computing equipment.

CHART 4
INCREASED COST OF CAPITAL INCURRED BY AMT FIRMS COMPARED TO FIRMS PAYING THE REGULAR INCOME TAX
Equipment Used to Make Selected Manufactured Products and Pollution-Control Equipment



Source: Andrew B. Lyon, "An Analysis of the Alternative Minimum Tax: Equity, Efficiency, and Incentive Effects." Paper prepared for a symposium sponsored by the American Council for Capital Formation Center for Policy Research, Washington, D.C., May 14, 1991.

Notes: The analysis assumes that firms are alternative minimum tax (ATM) payers for ten years. The cost of capital calculations are net of economic depreciation.

the level here. Capital costs are lower in Japan than in the United States.

Japan's capital cost advantage was documented recently by MIT Professor of Economics James Poterba. Comparing several different studies of U.S. and Japanese capital costs, Poterba concluded that Japan's cost of capital is approximately five percentage points less than that of the United States.

The corporate AMT has an especially pernicious effect on the cost of capital, as a new study by University of Maryland Economics Professor Andrew Lyon, which was commissioned by the ACCF Center for Policy Research, reveals. An AMT firm investing in factory robot equipment, for example, encounters capital costs that are 17 percent higher than those faced by a firm paying the regular income tax (see Chart 4). Investment in pollution-control facilities fares even worse; capital costs for AMT firms are 22 percent higher than for firms subject to the regular income tax.

Tax Code Discourages Saving

Many tax policy experts, including World Bank Chief Economist Lawrence Summers, conclude that TRA's partial revocation of individual retirement accounts (IRAs) was an unfortunate response to the widespread conviction that IRAs were ineffective in stimulating saving during the early and mid-1980s. These experts now believe that this conviction is not supported by the available evidence. While the official measured personal saving rate declined during the early and mid-1980s, this should not be taken as evidence that IRAs did not have a substantial impact on saving decisions. Many other factors affecting the saving rate have changed since 1981, so that any positive effect that IRAs might have had has been masked. Higher stock prices, the recession in 1982–1983, the desire of baby boomers to maintain the consumption levels enjoyed by their parents, reduced corporate pension contributions, increased consumer borrowing, and renewed consumer confidence all are possible explanations for the low saving rate. Without the enactment of IRAs, the saving rate might well have fallen even further.

The weight of the available evidence suggests that IRAs generated a significant amount of saving that would not have otherwise taken place. Under current law, if IRAs were reinstated, the government would lose about twenty-five cents for each dollar of contribution, according to Dr. Summers. If more than one-fourth of the money contributed to IRAs represents new saving, IRAs will increase private saving by more than their revenue cost. This means that net national saving will still increase on balance because the induced increase in private saving will be greater than the increase in government dissaving resulting from the higher government deficits.

Tax Policy for Economic Growth, International Competitiveness, and Environmental Protection

What Must Be Done?

- *Reduce the Cost of Capital for Equipment*

Stanford University Professor John B. Shoven's analysis of options for reducing capital costs for equipment shows that either expensing or integration of the corporate and personal income tax structure, or a 7.5-percent investment tax credit each could lower the cost of capital by 20 to 30 percent (see Chart 5). It appears that lowering the corporate tax rate would affect the cost of capital the least. The most effective option (per dollar of forgone revenue) may be an investment tax credit. Reducing capital gains tax rates from 28 to 20 percent would cause a noticeable reduction in the cost of capital, averaging 4.5 percent.

CHART 5
IMPACT OF SELECTED TAX CODE REVISIONS ON THE COST OF CAPITAL FOR INVESTMENT IN EQUIPMENT

Source: John B. Shoven, "Alternative Tax Policies to Lower the U.S. Cost of Capital," in *Business Taxes, Capital Costs, and Competitiveness* (Washington, D.C.: American Council for Capital Formation Center for Policy Research, July 1990).

Note: The examples above assume the investment is of moderate riskiness.

- *Modify the AMT Depreciation Provisions*

AMT payers face substantially higher capital costs on new investment in productive and pollution-control equipment than taxpayers subject to the regular tax. As Professor Lyon's new study on the corporate AMT notes, there are several routes to reform of the tax. One is simply repeal. Assuming, however, that the political pressures that led to the enactment of the tax are still present, this route is unlikely. A second route would be to rationalize the overall system of incentives offered through the tax system. If certain activities are deemed appropriate to encourage through tax incentives, it seems inconsistent that only some firms (regular tax firms) should be encouraged to undertake the activity. More similar investment incentives under the two tax systems would appear to be a logical step.

A recent positive development regarding the AMT is a statement by Richard Torkelson, chairman of the Environmental Protection Agency's Financial Advisory Board. In a speech to the Clean Water Foundation, Torkelson called for the elimination of interest earned on bonds to finance public purpose environmental facilities for water purification as a tax preference under AMT. It is very encouraging to see EPA analyzing ways to improve the ability of U.S. industry to finance pollution-control outlays.

- *Restore a Capital Gains Differential*

Research by Dr. Allen Sinai of The Boston Company Economic Advisors, Inc., indicates a 15-percent capital gains tax rate for both individuals and corporations would reduce the return required by an investor by 4 percent. In addition, when macroeconomic "feedback" effects as well as unlocking of unrealized capital gains are estimated, a substantial reduction in capital gains taxes results in stronger economic growth, increased capital formation, and federal tax revenues that are larger than under current law.

- *Expand IRA Coverage*

The Saving and Investment Initiative Act of 1991 (H.R. 406), introduced by Congressmen J.J. Pickle and William Thomas, with 150 co-sponsors, deserves very serious consideration. It expands current-law tax deductions for individual retirement accounts (IRAs) for all income classes and also provides for a new type of nondeductible IRA.

The abysmally low U.S. saving rate is not only the result of our large federal deficit but also due to a private saving rate that is only one-half the 1960–1981 level. The incentives provided by the Pickle-Thomas proposal offer important encouragement for Americans to relearn the savings habit. IRAs do increase personal saving, as documented in a 1987 study coauthored by Harvard Professor Lawrence Summers and MIT Professor Chris Carroll and more recently in a 1990 analysis by Harvard's David Wise and Dartmouth's Steven F. Venti.

How to Pay for Tax Reform

Although spending cuts would be preferable, if additional revenues are needed, a broad-based consumption tax such as a value added tax (VAT) could provide the wherewithal for tax initiatives needed both to lower U.S. capital costs for investment in equipment, a crucial determinant of economic growth, and to support the achievement of U.S. environmental goals.

The U.S. has yet to face up to a very important question: Just what type of tax system do we want and need as we enter what promises to be a highly competitive twenty-first century? That the existing system is inadequate should be crystal clear; not only does it help generate the highest capital costs in the industrial world, it is also cursed with extremely weak underpinnings from a political standpoint. This is because 90 percent of all federal revenues come from a combination of the income tax and the payroll tax. The former has again and again been labelled, from the standpoint of taxpayers, as the most unpopular federal tax of all.

The time has come to take a close look at a broad-based U.S. consumption tax such as a value added tax. Most of our major competitors, including Japan, Canada, and Germany, employ a VAT in their fiscal arsenal. Our low saving rate and massive trade deficit emphasize the need for a tax system that is less favorable to consumption and more favorable to the saving and investment needed for strong economic growth. The revenues from a federal VAT, which yields upwards of $30 billion per point, could provide the wherewithal for deficit reduction and for the tax initiatives for U.S. growth and competitiveness outlined in our testimony. If spending were restrained, a VAT would also reduce federal dissaving, lower real interest rates, and afford a further reduction in capital costs.

Conclusion

We must continue our concern with fairness in terms of the distribution of the tax burden and with the protection of the environment, but we must also recognize a broader dimension to the goal. As former Senator Paul Tsongas recently said, "You cannot redistribute wealth that is not created." What Tsongas is saying is that income-tax burden tables are not the end-all and be-all of tax fairness; U.S. economic growth, which creates jobs and higher living standards, is an integral part of the picture.

The tax policy that we have outlined in today's testimony will both reduce capital costs for investment in state-of-the-art machinery and equipment, which is a crucial determinant of U.S. economic growth and competitiveness, and support the achievement of U.S. environmental goals.